



State of Tennessee
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES

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November 5, 2015

Mr. Brian Keith Carnley
Chief, Installation Management Section, AEDC / TSDCI
Arnold Engineering Development Complex
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100 Kendell Drive, Suite A228
Arnold AFB, TN 37389

**Subject: Request for Waiver of Cooling Water Intake Studies
and Determination of Best Technology Available
NPDES Permit No. TN0003751
Arnold Engineering Development Complex
Arnold AFB, Franklin County, Tennessee**

Dear Mr. Carnley:

Per your request of July 27, 2015, the Division of Water Resources (the division) hereby waives the requirement to submit information required under CWA Section 316(b) and 40 CFR 122.21 (r) based on the following factors:

- AEDC's request identified that the cooling water intake is defined as a closed-cycle system per 40 CFR 125.92(c)(2);
- AEDC's cooling water source from Woods Reservoir on the Elk River is an impoundment constructed prior to October 14, 2014, and created for the purpose of serving as part of the cooling water system;
- AEDC has demonstrated to the division that make-up water withdrawals for cooling have been minimized;
- EPA rules at 40 CFR 125.95(a)(3) authorize the division to waive the information requirements in 40 CFR 122.21 (r) under certain conditions. The following facts meet these regulatory conditions:
 - The AEDC intake is located in a man-made lake in which the fisheries are managed by the TN Wildlife Resources Agency; and
 - Woods Reservoir does not contain federally-listed threatened and endangered species, and is not designated as a critical habitat.

To assess the potential significance of the cooling water intake on threatened and endangered species upstream of Woods Reservoir, TDEC has obtained input from US Fish and Wildlife Service, TN Wildlife Resources Agency, and the TDEC Division of Natural Heritage (DNH). Specifically, the DNH database indicated that endangered mussels are present only in upstream waters tributary to Wood Reservoir. Prior to considering the waiver, TDEC requested that AEDC provide information to address any potential relationship between the intake and species in tributary waters.

AEDC provided supporting information indicating that there are no threatened or endangered mussel species in the cooling water intake's source waters or in headwater streams within 10 river miles of the cooling water intake structure, or CWIS. Further, AEDC calculated the approximate Area of Influence of the intake structure, such that the potential for adverse effects on fish species utilized as hosts by mussel *glochidia* would be insignificant.

Accordingly, the division has determined that a waiver is warranted for submission of information requirements found in 40 CFR 122.21(r). These data will not be required prior to renewal of the NPDES permit which expires in November 2017. We will retain this determination along with AEDC's request and supporting information in the administrative record to be available during permit renewal.

AEDC information indicates the volume of water reused within the cooling water system is minimized, such that cooling water usage is actually 3.3 times the volume withdrawn.

- Withdrawals from Woods Reservoir are approximately 17.9 MGD for use in cooling, domestic, and steam production uses.
- Cooling water requirements amount to approximately 76.7 MGD.
- Reuse of approximately 59 MGD is accomplished by recirculation from the AEDC Retention Pond with a capacity of 500 MG.

Requirement of 40 CFR 125.90 (b)

This EPA rule says, although the EPA rules are not applicable to the AEDC cooling water system, the provisions of CWA Section 316(b) must be addressed in NPDES permits:

(b) Any standard established pursuant to section 301 or section 306 of this Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

TDEC has determined that the cooling water intake structure used by AEDC represents the best technology available (BTA) to minimize adverse environmental impact in accordance with Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326). This determination is based upon the following criteria:

- The AEDC cooling system includes an impoundment lawfully created in the waters of the U.S for the purpose of cooling and is considered a closed-cycle recirculating system.
- Operation of this closed cycle system minimizes the withdrawal of water for cooling purposes.
- Biological data is available demonstrating that: 1) the source water body does not include threatened or endangered species in the vicinity of the CWIS, and 2) the source water body is in attainment of designated uses.

Should you have questions or comments, please contact Mr. Bob Alexander at (615) 532-0659 or by E-mail at Robert.Alexander@tn.gov.

Sincerely,



Vojin Janjic
Manager, Water-Based Systems

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